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Extremity Problems in Ostrich Chicks and Their Treatment

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Abstract: Extremity problems in 120 ostrich chicks were investigated in this study. Fledglings were followed for 1 year and extremity problems were evaluated as congenital or acquired. In the study, congenital lower extremity problems were found in 17.5% of the cases (both extremities extended sideways in 10 cases, 1 extremity extended sideways in 3 cases, one leg extended forward and the other back in 4 cases, big toe retrovert in 2 cases, 5th toe deviated towards underneath of the big toe, totaling to 21 cases) and acquired lower extremity problems in 19.64% of the cases (tibiotarsal luxation in 6 cases, tarsal bone fracture in 1 case, fractures in radius-ulna in 1 case, injuries of the extremities in 9 cases and arthritis in the tarsal joint in 2 cases and in proximal interphalangeal joint in 3 cases, totaling to 22 cases). Extremity problems were found in 43 (35.83%) ostrich chicks out of 120 (congenital in 21 cases and acquired in 22). Of these 43 cases, it was observed that 29 (67.44%) were healed with the treatment applied, whereas, 14 (32.56%) did not heal. It was concluded in the study that the extremity problems causing great economic losses in ostrich husbandry can be minimized with prevention, early diagnosis and proper treatment.

Key words: Ostrich chick, extremity problems, treatment, prevention, diagnosis, toe

INTRODUCTION

The ostrich, which is the biggest of birds in our times and is classified as flightless, weighs 140-151 kg when alive; its height reaches 2.5 m and has a pretty appearance unique to it with their long neck and small (Anonim, 1987; Deeming, 1999; Gulbahar *et al*., 2000; Huchzermeyer, 1999).

Husbandry of ostrich, of which domestication attempts had started back in late 19th century, is performed not only in South Africa, but all around the world since its meat, feathers and skin is very valuable (Aslan *et al*., 2002; Alkan *et al*., 2000).

Most frequent problems of ostrich chicks are infectious diseases, extremity disorders and nutritional diseases (Huchzermeyer, 1999; Alkan *et al*., 2000). When diseases of ostrich fledglings are considered from the surgical point of view, they are extremity problems, fractures and dislocations and foreign body diseases related to eating nonfood materials. Death in ostrich fledglings before 6 months of age reaches 20% because of these diseases (Anonim, 1987; Deeming, 1999; Alkan *et al*., 2000, 2001).

The aim of the present study, is to determine the extremity problems seen in ostrich chicks and to investigate the choices of treatment.

MATERIALS AND METHODS

This study was performed on 120 ostrich chicks. Extremities of the fledglings coming out of the incubator and taken to fledgling case unit were examined and congenital extremity problems were determined.

Congenital extremity problems were classified as legs extended sideways, one leg extended forwards and the other extended backwards and toe problems. Extremities of the cases that legs were extended sideways, forwards or backwards were brought to normal position and both extremities were fixated with rubber bands in the distal of the tarsal joint in a manner not very tightly so as not to prevent walking.

Toes of the cases with retrovert toes were bandaged with fiberglass bandage after bringing them to normal position extending to the tarsal joint but not including it. Ostrich chicks were followed for 1 year to determine their acquired extremity problems. Cases were

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put under general anesthesia by administering intramuscular xylazin HCI (1 mg kg^{-1}) + Ketamin HCI (25 mg kg^{-1}).

Amoxicillin + Clavulanic acid (Synulox®-Pfizer), vitamin B complex (Nervit®-Vetas), mineral complex (Depomin-Vetas), Lasonil pomade (Bayer) and Furacin pomade (Eczacibasi) were used for medical treatment.

RESULTS

It was found in the physical examination performed in the rest room that total 21 cases had congenital extremity problems; among these, 10 fledglings had their lower extremities extended sideways, 3 fledglings had one extremity extended sideways (Fig. 1) 4 fledglings had one extremity extended forwards and the other extended backwards (Fig. 2), 2 fledglings had retrovert big toe (Fig. 3) and 2 fledglings had their fifth toe deviated underneath the big toe (Fig. 4).

Feet of the cases that feet extended sideways were bandaged to each other with a band on the distal of the tarsal joint in a manner not very tight that would not prevent walking. Cases were on their feet the next day and they were able to walk. Bandages were removed 3 days later. It was observed that 4 cases were walking normally and the remaining 6 cases had their extremities extended sideways again, so these extremities were bandaged again for 8 days more. One case died on day 9. It was found in the physical examination that the cause of death was opacities (yolk-sac infection). Edema formed in the distal of the extremities in 2 cases 1 day later than the bandaging of the extremities. It was understood that the rubber bandages were too tight; edema resorbed upon loosening the bandage somehow. Bandages were removed at the end of day 8. Three cases were able to walk normally whereas 2 cases did not respond to the treatment applied positively.

Bandages of the cases with one extremity extending sideways were removed after 8 days. One case was able to walk normally whereas 2 cases were unable to walk normally. Feet of these cases were re-bandaged. When bandages were removed after 6 days, it was observed that one case walked normally. One case did not respond to the treatment.

Extremities of the cases that one of the extremities extended forwards and the other extended backwards were brought to normal position and bandaged to each other on the distal of the tarsal joint with a rubber bandage. Bandage was removed after 7 days. While, 2 cases walked normally, no healing was observed in the extremities of 2 cases.

Fig. 1: One extremity extended sideways

Fig. 2: One extremity extended forwards and the other extended backwards

Fig. 3: Retrovert big toe

Fig. 4: Fifth toe deviated underneath the big toe

Fig. 5: Fiberglass bandage was applied

In the clinical, examinations of the 2 cases with retrovert toes, toes could be brought to normal position easily. These toes were brought to normal position and fiberglass bandage was applied that did not include the tarsal joint (Fig. 5). It was seen that the case got on its feet immediately and walked normally. It was seen on day 5 that the case was restless and it was found that the bandage was too tight; so the bandage was renewed. It was observed that fledglings managed normal walk when the bandage was removed 12 days later.

In 2 cases that the 5th toe deviated underneath the big toe, 5th toes brought to normal position and supported bandage was applied. The bandage was removed on 12th day. One case was able to walk normally, while, 1 case did not respond to the treatment.

It was found in the study that healing occurred as a result of the treatment applied in 14 fledglings (66.6%) out of 21 with that congenital extremity problems, while no positive response could be obtained in the remaining 7 (33.3%).

Tibiotarsal luxation formed in 3 cases within the 2nd month, in 2 cases within the 3rd month and in 1 case within the 4th month. Luxation occurred in only one extremity in all the cases. It was observed in one case that the left foot was rotated 90° to left and the joint capsule and skin was torn. No treatment was applied to this case. There was swelling in the joint area in 5 cases; these had also difficulties when walking, they were giving their weight onto their feet cautiously. It was found in the physical examination that all these cases had tarsal luxation. Cases were taken under general anesthesia, the joint was brought to normal position and elastic bandaging supported with cardboard including only the joint was applied. Cases were restless till they got used to the bandage; however, they were able to walk normally 2 h later. Bandages of the cases were renewed every 6 days. When the bandages were removed 20 days later, it was observed that 3 cases walked normally. Two cases did not respond to the treatment. However, tarsal luxation re-formed in 2 cases out of those 3 healed; 2 months later in 1 case and 3 months later in the other. No treatment was applied to those cases. Positive results could not be obtained in cases that treatment was applied to for tibio-tarsal luxation.

One fracture in tibia occurred in one case in the 3rd month during a fight between them and in tibia in another case during transport. Fracture in tibia was not treated because of the blood loss and the agony picture since, the caregiver saw it too late and fracture turned to an open fracture since, the patient moved around too much. Fracture in radius-ulna was bandaged with fiberglass and wings of the case were tied together. It was seen that positioning with fiberglass bandage (plaster) was easy; it hardened quickly and was light. Bandage was removed after 25 days. The case healed completely.

Lameness occurred in nine cases related to injuries in one extremity. These injuries were cuts in 4 cases (with glass or metal), sharp objects in 3 cases (thorns) and bruises in 2 cases. These wounds were cleaned with antiseptic solution. Wounds were revived and sutured; healing was observed within 1 week. Wounds with sharp objects and bruises were cleaned with antiseptic solution and dressed using Furacin pomade (Eczacibasi) and healed in 8 days.

With the aim of treating arthritis in the tarsal joint in 2 cases and proximal interphalangeal joint in 3 cases, the contents of the joints were drained with punction. While, there was no growth in the microbiological investigation of the said contents in 3 cases, growth was seen in 2 cases. Dressings pressurizing the joint were applied to aseptic joint inflammations. It was seen that the cases had healed when the dressings were removed after 7 days. For the septic joint inflammation, amoxicillin + clavulanic acid 16 mg/100 g (Synulox®-Pfizer) was administered intramuscularly. Oral vitamin B complex (Berovit B12-DIF) b.i.d. was given in a dosage of 6 mg/100 g for 5 days. It was observed that all the cases were healed within 10 days.

In the study, healing was seen in 15 (68.18%) out of 22 fledglings with acquired extremity problems, while no response could be obtained in the remaining 7 (31.81%) fledglings.

Extremity problems were found in 43 (35.83%) of the total 120 ostrich chicks in this study (21 congenital and 22 acquired). Twenty nine cases (67.44%) out of 43 healed as a result of the treatment, while the remaining 14 (32.56%) did not heal.

DISCUSSION

The causes of the foot deformities in ostrich chicks has been reported as hard and slippery surface of the

eggshell, genetic factors, vitamin and mineral imbalances (Deeming, 1999; Huchzermeyer, 1999; Aslan *et al*., 2002; Mushi *et al*., 1999).

When diseases seen in ostriches are evaluated from a surgical point of view, congenital and acquired foot deformities, fractures and dislocations are those most frequently seen (Gulbahar *et al*., 2000; Huchzermeyer, 1999; Aslan *et al*., 2002; Alkan *et al*., 2000, 2001). The rate of extremity problems seen as 35.83% in this study parallels the results of the previous studies.

It has been reported that positive results are obtained when extremity problems are treated in the early period (Huchzermeyer, 1999; Mushi *et al*., 1999). Healing shown in this study in 66.66% of the cases with congenital extremity problems with the treatment applied and also healing of 68.18% of the cases with acquired extremity problems show the importance of early and proper treatment.

It has been reported, that the causes of deviations of toes are genetic factors, improper burrows and deficiencies of minerals and vitamins and that also excess amounts of growth factor play an important role (Deeming, 1999; Huchzermeyer, 1999). It has also been reported, that positive responses are obtained on toe deviations with suitable surgical interventions (applying bandages) (Deeming, 1999; Huchzermeyer, 1999). Positive results obtained with application of bandages on cases with 2 deviations in the present study are consistent with the results of other investigators. However, checking and changing the bandages frequently will increase the success rate of the treatment, since ostrich chicks develop rather fast.

It is reported that no treatment is possible in tibiotarsal rotation (Huchzermeyer, 2002; Sahan *et al*., 2008). One of the most important causes of death within the first 10 weeks in ostrich chicks is tibiotarsal rotation (Deeming, 1999; Mushi *et al*., 1999). Lack of positive results in tibiotarsal luxation in the present study is consistent with the opinions of these investigators.

It has been reported that bumpy strolling areas with stones and gravel for the strolling of ostrich chicks and insufficient numbers of water and feeding troughs increase the extremity problems (Deeming, 1999; Aslan *et al*., 2002; Mushi *et al*., 1999). Injuries in the feet of nine fledglings in the study with cuts (glass and metal), sharp objects (thorns) and bruises support the opinions of these investigators.

CONCLUSION

It has been concluded for ostrich husbandry that the economic losses arising from congenital and acquired extremity problems seen in ostrich chicks can be reduced with prophylactic measures, proper burrows and eliminating stress factors and with proper treatment.

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